

**Claims**

1. An antenna array having a plurality of array elements, the antenna array comprising:

5 a first array element having a first suspended radiator and a first ground conductor, the first suspended radiator being displaced from the first ground conductor; and

a second array element being adjacent to the first array element, the second array element having a second suspended radiator and a second ground conductor, 10 wherein the second suspended radiator is displaced from the second ground conductor,

wherein the first ground conductor is adjacent to and displaced from the second ground conductor and the first ground conductor is disposed on a first tier and the second ground conductor is disposed on a second tier to form an at least two-tiered ground conductor.

15

2. The antenna array as in claim 1, wherein the first array element is immediately adjacent to the second array element.

3. The antenna array as in claim 1, wherein the first ground conductor is 20 continuous with the second ground conductor.

4. The antenna array as in claim 1, wherein the inter-element spacing between the first array element and the second array element is greater than the lateral spacing therebetween.

25

5. The antenna array as in claim 1, wherein the antenna array is a plate antenna array.

6. The antenna array as in claim 5, wherein each of the first and second array 30 elements is a plate array element.

7. The antenna array as in claim 6, wherein each of the first and second ground conductors is a ground patch.

8. The antenna array as in claim 7, wherein the first ground patch is continuous with the second ground patch.

5 9. A method for configuring an antenna array having a plurality of array elements, the method comprising the steps of:

providing a first array element having a first suspended radiator and a first ground conductor, the first suspended radiator being displaced from the first ground conductor;

10 providing a second array element as adjacent to the first array element, the second array element having a second suspended radiator and a second ground conductor, wherein the second suspended radiator is displaced from the second ground conductor;

disposing the first ground conductor adjacent to and displaced from the second ground conductor; and

15 disposing the first ground conductor on a first tier and the second ground conductor on a second tier to form an at least two-tiered ground conductor.

10. The method as in claim 9, wherein the step of disposing the first ground conductor adjacent to and displaced from the second conductor includes disposing the first array element immediately adjacent to the second array element.

11. The method as in claim 9, further comprising the step of providing the first ground conductor as continuous with the second ground conductor.

25

12. The method as in claim 9, further comprising the step of providing the inter-element spacing between the first array element and the second array element as greater than the lateral spacing therebetween.

30 13. The method as in claim 9, further comprising the step of providing the antenna array as a plate antenna array.

14. The method as in claim 13, comprising the step of providing each of the first and second array elements as a plate array element.

5 15. The method as in claim 14, comprising the step of providing each of the first and second ground conductors as a ground patch.

16. The method as in claim 15, comprising the step of providing the first ground patch as continuous with the second ground patch.